

1 5. The method of claim 3, wherein using comprises:
2 computing cost functions for each of the physical devices
3 involved in the cost function analysis and determining a maximum
4 value from the computed cost functions, based on the current
5 mirror service policy and the new mirror service policy.

1 6. The method of claim 5, wherein using comprises:
2 determining that the reassignment of workload can be made
3 if the maximum value based on the new mirror service policy is
4 less than the maximum value based on the current policy.

1 7. The method of claim 6, wherein adjusting comprises
2 processing the one or more logical volumes in a sequence
3 beginning with the outermost logical volume bordering logical
4 volumes serviced by another physical device.

1 8. The method of claim 7, wherein, for each successive one
2 of the processed logical volumes, the new mirror service policy
3 of an immediate predecessor of the processed logical volumes is
4 used as the current mirror service policy for the cost function
5 analysis.

1 9. The method of claim 2, wherein the threshold value
2 comprises fifty percent.

1 10. A computer program product residing on a computer
2 readable medium for optimizing response time of physical devices
3 in a data storage system, comprising instructions for causing a
4 computer to:
5 collect statistics for each of the physical devices;

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6         determine from the statistics the  $n$  most active of the
7 physical devices;

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8       for each of the  $n$  most active of the physical devices,
9       adjust a mirror service policy associated with a mirrored
10      logical volume serviced by the physical device to reduce seek
11      time.

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1 11. A data storage system comprising:

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2         physical devices having mirror logical volumes stored
3 thereon;
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4 a storage controller for controlling access to the
5 physical devices; and

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6         wherein the storage controller collects for the physical
7 devices statistics including utilization and, for each of  $n$  of
8 the most active of the physical devices, adjusts mirror service
9 policy associated with a mirrored logical volume serviced by the
10 physical device to minimize seek time when the utilization is
11 greater than a threshold value.

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